

EXHIBIT B

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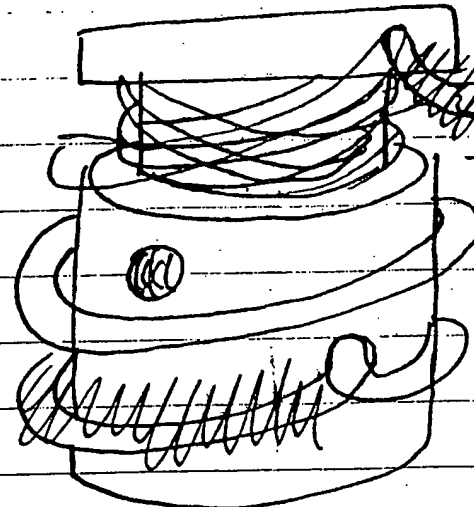
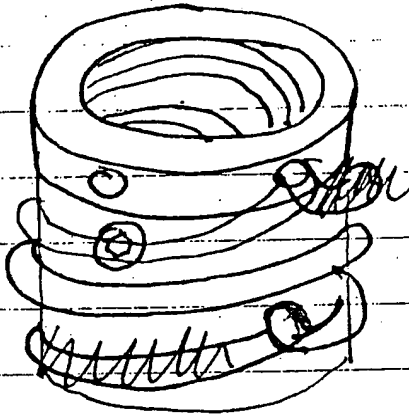
CONSTANT TENSION

CARTON

MARCH 1998

L.H. THDS.
DIRECTION
TO UNSCREW

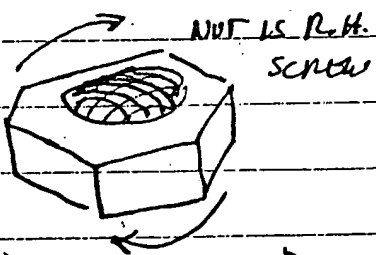
HEX SOC.
DO NOT
SET SCREW



TO SET SPR.

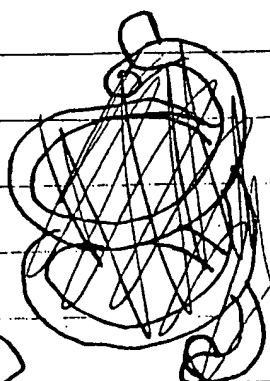
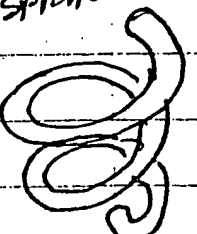
1"

3/4" TRAVEL

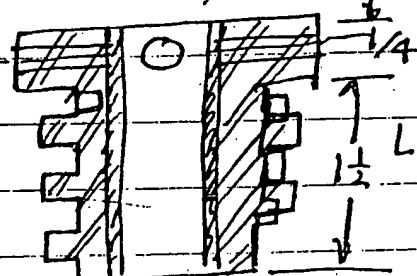


NUT IS R.H.
SCREW

TORSION
SPRING



DIH. OF
A 1" ϕ WASHER



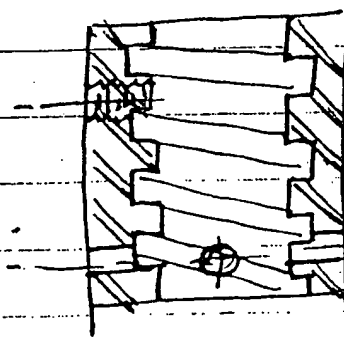
3/4" ϕ SLEEVE

1/2" ϕ SLEEVE

1/4"

1 1/2"

L.H. THDS



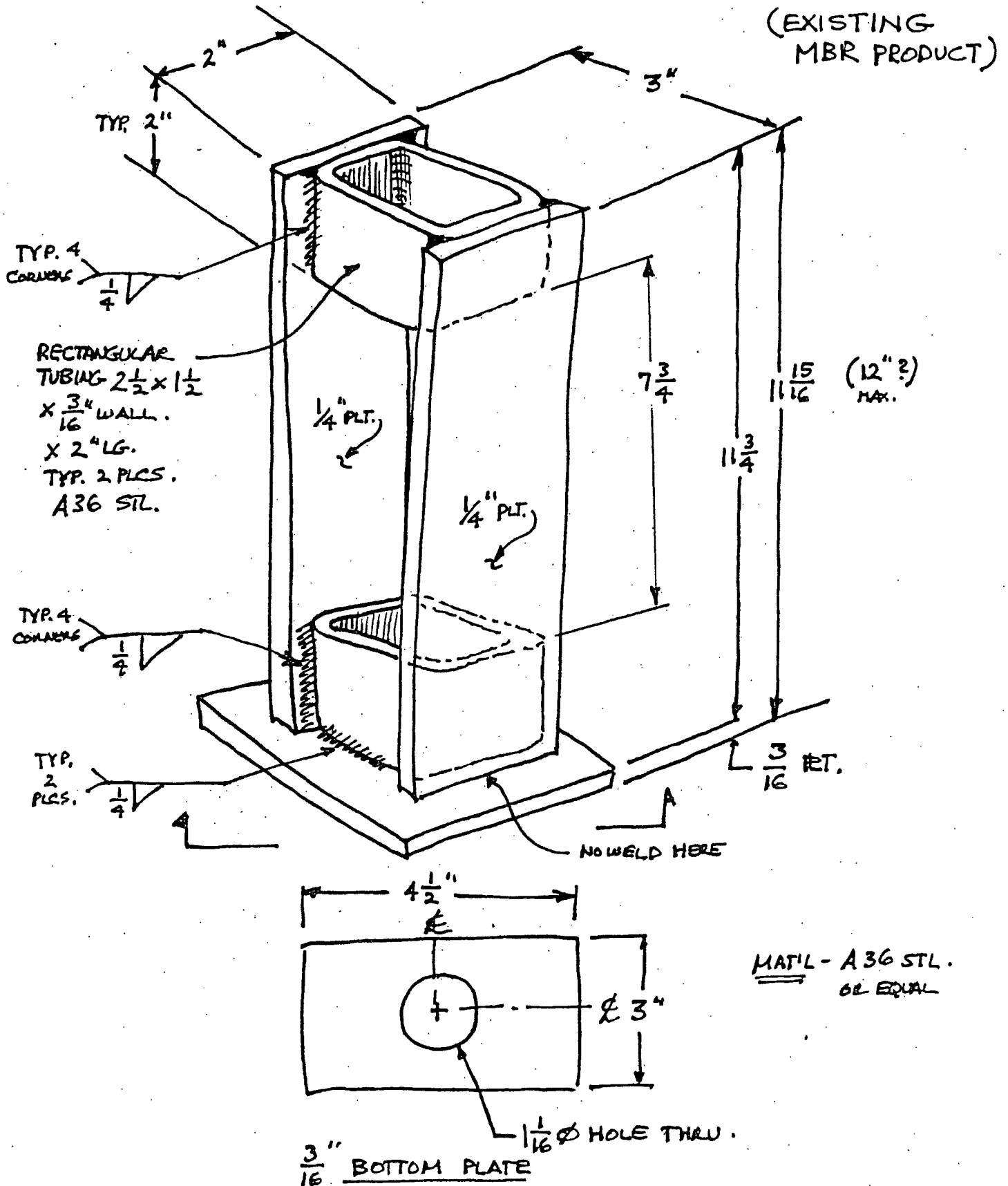
3/4"

1 3/4"

BRACKET - ENGINEERING SKETCH

MBR TIE DOWN SYSTEM (NO SCALE)

MAR 19 1998
By *al. Lemo*



APR 01 1998

CALC. BY D. J. Jones

STRENGTH OF 1 3/4 - 4 ACME - 26 - LH THREADS:
USING AISI 1026 MECH. STL. TUBING.

1. $E_s = 1.6145 \text{ P.D. MAX.} - .00794 = 1.6066$
 $K_s = 1.4800 \text{ MINOR DIA. MAX.} - 1.5 \times .00794 = 1.46809$
 $K_N = 1.5916 \text{ P.D. MINIMUM}$
 $P = .250$

TENSILE STRENGTH:

1A. $\text{STRESS AREA} = \pi \left(\frac{E_s + K_s}{4} \right)^2 = \pi \left(\frac{1.6066 + 1.46809}{4} \right)^2$
 $= 1.85623 \text{ in}^2 - (1" \text{ CENTER HOLE AREA})$
 $\quad \quad \quad .7854 \text{ in}^2$
 $= \underline{\underline{1.07083 (A_t)}}$

1B. $\text{SHEAR AREA} = \pi K_N \left[0.5 + \frac{1}{P} \tan 14\frac{1}{2}^\circ (E_s - K_N) \right]$
 $= 3.1416 \times 1.5916 [0.5 + 4 \times .258617584 (1.6066 - 1.5916)]$
 $= 5 [.017456686] = \underline{\underline{.0873 \text{ in}^2}}$

2. AISI 1026 STEEL = TENSILE: 55,000 PSI (S)
 YIELD : 30,000 PSI

P = LOAD TO BREAK THREADED PORTION OF SCREW
 IN TENSION.

$P = S A_t = 55,000 \times 1.07083 = \underline{\underline{58,895 \text{ LBS.}}}$
 OR 29.5 TONS

USE SUB ACME THREADS

"RYERSON" STEEL CO. PRICE CHECK

APR 02 1998

W. Lemme

| ITEM. | 20 FT. RANDOM LENGTHS - COST EACH 20' LG. | | 20 FT. MAKES PIECES | COST PER FT. | 20'0" MAT'L COST NO. EACH LENGTHS | |
|-------|--|---------|---------------------------|----------------|---|---------|
| | | | | | | |
| 1. | 2 1/4 O.D. X 1" I.D. X 2 1/4 | \$ 457. | (106) | \$ 22.85 / FT. | (1) ea. | \$ 4.31 |
| | SEAMLESS #1026 | 344. | (106) | 17.20 | (5) | 3.24 |
| | MECH. STL. TUBING (SCREW) | 319. | (106) | 15.95 | (20) | 3.01 |
| 2. | 2 1/4 O.D. X 1 1/2 I.D. | \$ 211. | (120) | \$ 10.55 / FT. | (1) ea. | \$ 1.76 |
| | D.O.M. #1026 WELDED (NUT) | 177. | (120) | 8.85 | (5) | 1.48 |
| | MECH. STL. TUBING | 168. | (120) | 8.40 | (20) | 1.40 |
| | (DRAWN OVER HANDLER) | | | | | |

MAT'L. STOCK COST (1.) \$ 3.01

(2.) 1.40

\$ 4.41

TUBE ASSEMBLY

JUST IN MAT'L COST

MACHINING SHOP COST NOT INCLUDED.

APR 02 1998

TYP. WASHER SIZES

WASHER (AMERICAN NAT'L. STANDARD TYPE B)
(PLAIN) (TYPE A HAS BEEN DISCONTINUED)

1. $1^{\circ}\phi$ SIZE WASHER - $1.062^{+.030}_{-.007}$ I.D. X $2.500^{+.030}_{-.007}$ O.D. X
.160 THK. (.146/.174 MIN/MAX.)
2. $3/4^{\circ}\phi$ SIZE WASHER - $0.812^{+.030}_{-.007}$ I.D. X $2.000^{+.030}_{-.007}$ O.D. X
.160 THK. (.146/.174 MIN/MAX.)
3. $1/2^{\circ}\phi$ SIZE WASHER - $0.531^{+.015}_{-.005}$ I.D. X $1.250^{+.030}_{-.007}$ O.D. X
.100 THK. (.090/.112 MIN/MAX.)

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